REMARKS

Claims 2-5 have been canceled without prejudice or disclaimer, and claims 1, 6, 7, 9-13 and 15-18 have been amended in order to more particularly point out, and distinctly claim the subject matter to which the applicants regard as their invention. As a result of this amendment, claims 1 and 6-19 are pending in this application.

The applicants respectfully submit that no new matter has been added. Support for the amendments to the claims is discussed below.

Amendments are also made to the specification, to correct minor grammatical, usage and spelling errors. Applicant notes that the original specification, as filed, has misnumbered pages, with page 1 starting on the second page of the specification. The page numbers referred to below are renumbered beginning at the first page of the specification.

Claims 9, 10 and 15 are objected to because of the following informalities. (Office action paragraph no. 1)

The Examiner refers to the phrase "made act" in these claims. The objection is overcome by the amendments to the claims, in which the phrase "made act" is replaced by the recitation that "α-glucosidase is added" in the fermentation process, as supported by page 7, lines 12-15, of the specification.

The phrase "made act" occurs in the original specification on page 8, line 5, of the specification, in a description corresponding to claim 15. In the description corresponding to claims

9 and 10, on page 7, lines 12-15, the specification discloses that "α-glucosidase is **added** in the fermentation process" (emphasis added) and that the result is to "reduce acetic acid production".

The intended meaning of "made act" was "made to act", referring to the reaction catalyzed by this enzyme. As noted, this recitation has been deleted in claims 9, 10 and 15, and the phrase "made act" has been amended to --made to act-- on page 8, line 5, of the specification.

Claims 9, 10 and 15 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. (Office action paragraph no.2)

The Examiner states that the claims omit essential steps, that is the steps for manufacturing beer, citing MPEP 2172.01. The Examiner appears to be referring to the fact that claim 9 recites "a method of manufacturing beers", but recites only the fermentation process.

The rejection is overcome by the amendments to claims 9, 10 and 15. These claims have been amended to recite the other steps in the process for manufacturing a regular beer and low-calorie beers, that is, conducting the malting process, the wort producion process and the lagering process. This amendment is supported by the specification on page 11, lines 10-12, which discloses that: "a method of manufacturing fermented malt beverages is generally composed of ... a malting process, a wort production process, a fermentation process, and a lagering (maturation process)."

Applicant has also amended claim 1, which limits the wort production process, one of a series of processes involved in fermenting malt beverages (see page 11, lines 10-12, of the

specification), to recite the other steps in this series. The specification explains on page 11, lines 13-16, that "in the wort production process, brewing water is added to ground malt and starch is converted to sugars by enzymes included in malt to make mash".

Claim 7 recites the limitation "wherein the [sic] malt and adjuncts" in line 1. There is insufficient antecedent basis for this limitation in the claim. (Office action paragraph no. 3)

The Examiner appears to refer not to the "malt and adjuncts", since these ingredients are introduced in claim 7, but to the term "sugar ingredients" in claim 7.

The rejection is overcome by the amendments to the claims. As amended, claim 1 now recites the step of "adding α-glucosidase simultaneously with ground malt to brewing water to make a mash." Claim 7 has been amended to recite "wherein adjuncts are added to the malt in the mash".

Claims 9 and 10 recite the limitation "in the high gravity brewing of beer" in line 2. There is insufficient antecedent basis for this limitation in the claim. (Office action paragraph no. 4)

The rejection is overcome by the amendments to the claims. As discussed above in regard to paragraph no. 2 of the Office action, claims 9 and 10 have been amended to recite the additional steps associated with the manufacturing a regular beer.

Original claims 9 and 10 refer to the "high gravity brewing of beer." The specification, starting on page 3, line 6, discusses high gravity brewing in general, indicating that "high gravity

brewing is a method to ferment the high concentration of original extract". Page 3, lines 8-11, of the specification, discloses that wort in which the concentration of original extract of wort is usually 13-16% is diluted with carbonated water prior to shipping, but the specification also indicates that in the present invention, the original extract of wort is adjusted from 13-30% by weight (page 7, line 21; original claim 13). Claims 9 and 10 have been amended to include this step.

Claim 11 recites the limitation "wherein a brewer's yeast" in line 2. There is insufficient antecedent basis for this limitation in the claim. (Office action paragraph no. 5)

Reconsideration of the rejection is respectfully requested in view of the amendment to claim 11.

Original claim 11 recites: "wherein a brewer's yeast ... is used." Applicant notes that since the recitation of the brewer's yeast or other yeast represents the introduction of a component not previously recited, antecedent basis for these terms is not an issue. However, claim 11 has been amended to replace "is used" with --is added during the fermentation process--, to clarify when the recited yeast is added.

Claim 13 recites the limitation "wherein the concentration of original extract of wort is 13-30 weight%" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim. (Office action paragraph no. 6)

The rejection is overcome by the amendment to base claim 9, in which the recitation of

"conducting a wort production process;" and "adjusting the concentration of original extract of wort to 13-30 weight %" have been added. The "13-30 weight %" limitation of original claim 13 has been incorporated into claim 9, and claim 13 has been amended to recite the narrower "18-25 weight %" range. Support for this limitation may be found on page 14, line 3, of the specification.

Claim 15 recites the limitation "enhance real degree of" in line 2. It is unclear what this means. (Office action paragraph no. 7)

The rejection is overcome by the amendment to claim 15.

Applicant notes that "real degree of fermentation" is a well known parameter in the art, as the specification explains on page 15: "Real degree of fermentation indicates the ratio of consumed extract against original extract without effect of alcohol."

The original recitation of "to enhance the real degree of fermentation" has been amended for clarity to: "such that the real degree of fermentation is greater than in the process performed in the absence of α-glucosidase".

Claim 16 recites the limitation "wherein a brewer's yeast or a yeast for brewing other than a brewer's yeast is used" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim. (Office action paragraph no. 8)

The rejection is overcome by the amendment to claim 16. The amendment is analogous to that of claim 13 in response to the rejection in paragraph no. 6 of the Office action, as discussed above.

Claim 18 recites the limitation "wherein the concentration of original extract of wort is over 10 and not more than 30 weight %" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim. (Office action paragraph no. 9)

The rejection is overcome by the amendment to claim 18. The amendment is analogous to that of claim 13 in response to the rejection in paragraph no. 6 of the Office action, as discussed above.

Claims 1, 4 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Sekibata et al. (EP 0,523,333 A1). (Office action paragraphs no. 11-12)

The rejection is overcome by the amendment to claim 1, and is moot for claim 4, which is canceled without prejudice or disclaimer.

Claim 1 has been amended, as noted above, to recite the basic steps of manufacturing fermented malt beverages. Claim 1 has also been amended to incorporate the limitation of claim 3, that the α-glucosidase is added simultaneously with ground malt to the brewing water. Moreover, claim 1 has been amended to recite the step of "adjusting the concentration of original extract of wort

to 12 to 13 weight%". This amendment is supported by the specification on page 4, line 8, and Examples 1 to 4 on pages 16-18.

As to the conventional process mentioned by Sekibata, generally a wort production process in manufacturing a beer is as follows: grounding malt → saccharification → filtering mash → boiling mash → (adjustment of the extract of wort).

The method by Sekibata is directed to manufacturing of a low-alcohol beer. In the method by Sekibata, the malt extract concentration (i.e., concentration of original extract of wort) is 4.5-10%. Values below 4.5% or above 10% are "not preferred" (Sekibata EP '333, page 3, lines 12-19). Therefore, the concentration of the extract of wort which is used in a brewing process is low. The extract of wort whose concentration has been adjusted to such a low level is processed by α-glucosidase, with the result that the amount of fermentable sugars in the extract of wort becomes further smaller, and then a low-alcohol beer is produced via alcohol fermentation by yeast.

Claim 1 relates to manufacturing a regular beer. Therefore, the concentration of the extract of wort after saccharification is high (for example, 13% in Example 2 and 20% in Example 6). Although isomaltooligosaccharides, which are not fermentable sugars, are produced by α-glucosidase, adequate amount of fermentable sugars still remain in the extract of wort. Therefore, the amount of alcohol produced during fermentation by yeast becomes equivalent to that in a regular beer. Namely, the mount of fermentable sugars in the adjusted extract of wort (original extract minus real extract) according to the present inventions is high (for example, 6.58% in Example 2.

See figure 3), and the amount of alcohol produced during alcohol fermentation process is also high (for example, 4.41% in Example 2. See figure 3).

As stated above, between the method of Sekibata and the methods according to present inventions there is a significant difference in the concentration of fermentable sugars in the extract of wort used for alcohol fermentation process.

Meanwhile, in the method by Sekibata, the wort whose extract concentration has been adjusted to **4.5% to 10%** is processed by α-glucosidase. Taking the conventional process mentioned above into consideration, the method by Sekibata α-glucosidase is added after boiling step in wort production process. In claim 1, α-glucosidase is added during saccharification in the wort production process. That is, the present inventions are characterized by that α-glucosidase is added before a heat treatment on the mash (see the amended 1). According to the method by Sekibata, two-step process (saccharification of malt and glycosyltransfer by a-glocosidase) which employs enzymes is required. On the contrary, the methods according to the present inventions can achieve saccharification and glycosyltransfer by a-glucosidase at the same time in one process. As apparent from the above, the methods according to the present inventions simplify the course of manufacturing a beer.

Accordingly, claims 1 and 8 are not anticipated by Sekibata et al.

Claims 2-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sekibata et al. (EP 0,523,333 A1) in view of Hamdy (U.S. Patent No. 4,929,452), Owades et al. (U.S. Patent No. 4,827,034) and Satoshi et al. (JP 05-068529). (Office action paragraph no. 15)

Applicant notes that remarks are also applied to claims 5, 6, 7, 9, 10, 11, 12, 13, 15, 16, 17, 18 and 19, in paragraphs 17-25 of the Office action. These claims are assumed to be rejected here as well.

Applicant notes that "Satoshi et al." (in JP-529), appears to refer to the same inventor as "Sekibata". Satoshi et al. JP-529 is a related application to Sekibata et al. EP '333, with very similar disclosure. Applicant has obtained and attached an English translation of Satoshi et al. JP 05-068529, to clarify the disclosure of this reference.

The rejection of claims 2, 3 and 5 is moot in view of the cancellation of these claims without prejudice or disclaimer. The rejection of claims 6, 7, 9, 10, 11, 12, 13, 15, 16, 17, 18 and 19 is overcome by the amendments to base claims 1, 9, 10 and 15.

Applicant has discussed above how claim 1, as amended, is distinguished from Sekibata et al. on the basis of the limitation on the concentration of original extract of wort being 12-13 weight%. In Sekibata, this concentration is 4.5 to 10% by weight, with values above 10% "not preferred". Claims 9, 10 and 15 also have been amended to limit the concentration of original extract of wort (13-30 weight % in claim 9; 13-30 weight% in claim 10; 12-30% in claim 15), such that the lower limits in the claims are above the preferred upper limit of 10% in Sekibata.

That is, the present inventions relate to addition of a-glucosidase during a specific process and use an original extract of wort with regular or high concentration (12 to 30%), while the method of Sekibata uses an original extract of wort with low concentration (not over 10%).

Applicant therefore submits that base claims 1, 9, 10, and 15, as amended, are distinguished from Sekibata, and that the combination with the other references cannot provide the limitations of these claims. The pending claims are therefore not obvious over Sekibata et al. (EP 0,523,333 A1) in view of Hamdy (U.S. Patent No. 4,929,452), Owades et al. (U.S. Patent No. 4,827,034) and "Satoshi et al." (JP 05-068529), taken separately or in combination.

In view of the aforementioned amendments and accompanying remarks, the claims, as amended, are believed to be in condition for allowance, which action, at an early date, is requested.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact Applicant's undersigned agent at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

In the event that this paper is not timely filed, Applicant respectfully petitions for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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Attachments: English translation of Satoshi et al. JP 05-068529
Marked up version of the specification for specification amendment
Substitute specification for specification amendment

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